

SYSTEM AND METHOD FOR CALIBRATING A SPATIAL LIGHT MODULATOR ARRAY USING SHEARING INTERFEROMETRY

ABSTRACT OF THE DISCLOSURE

A system for calibrating a spatial light modulator array includes an illumination system and a spatial light modulator array that reflects or transmits light from the illumination system. A projection optical system images the spatial light modulator array onto an image plane. A shearing interferometer creates an interference pattern in the image plane. A controller controls modulation of elements of the spatial light modulator array. The shearing interferometer includes a diffraction grating, a prism, a folding mirror or any other arrangement for generating shear. The shearing interferometer can be a stretching shearing interferometer, a lateral shearing interferometer, or a rotational shearing interferometer. The shearing interferometer may include a diffraction grating with a pitch corresponding to a shear of the light by an integer number of elements. The projection optics resolves each element of the spatial light modulator array in the image plane. The controller can modulate alternate columns of elements of the spatial light modulator array.

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